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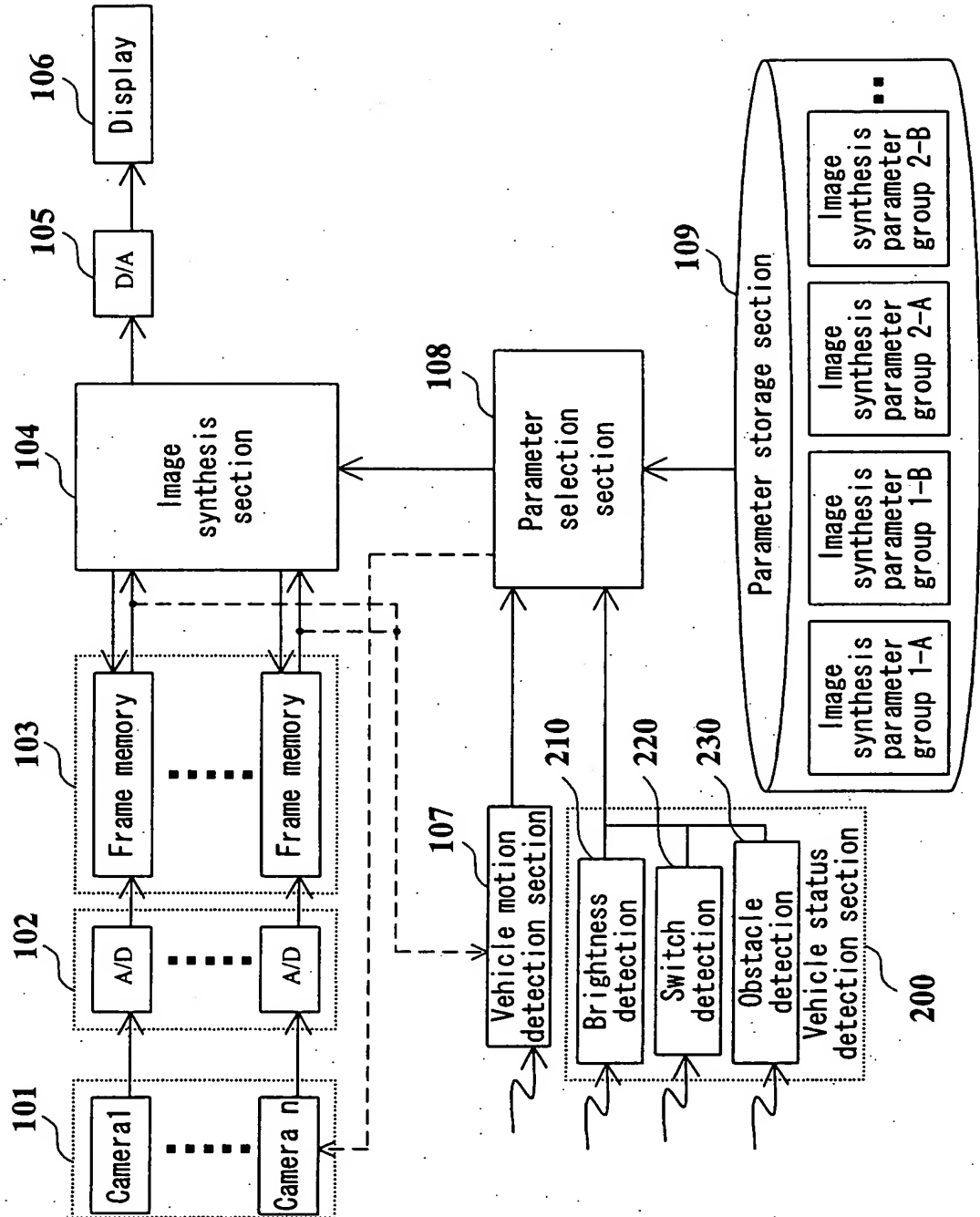
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- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
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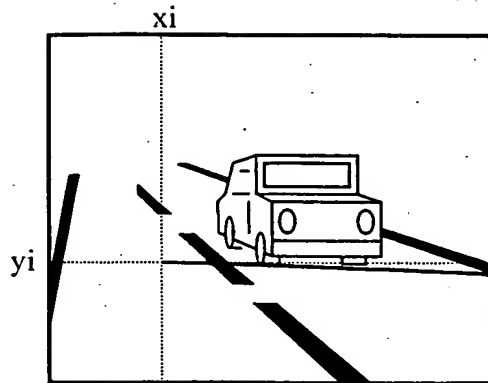
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FIG. 1



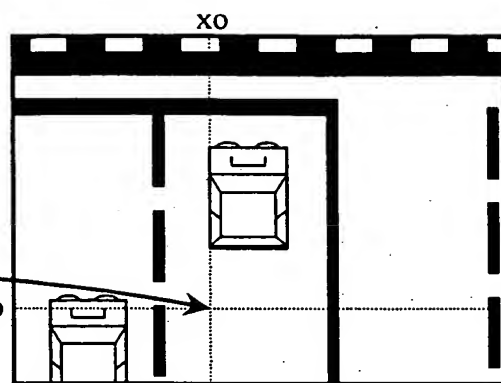
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FIG. 2A



Camera image (Camera 1)

FIG. 2B



Synthesized image

FIG. 2C

Camera No.	X coordinate	Y coordinate
1	x_i	y_i

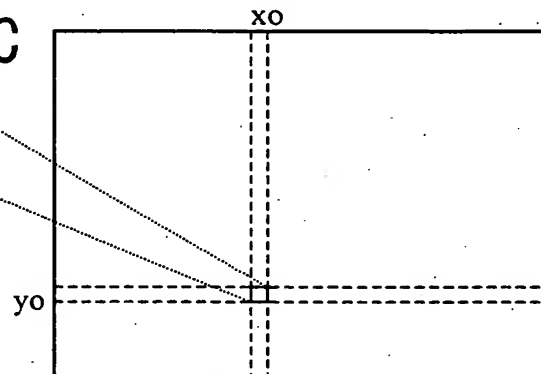


Image synthesis parameter group

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FIG. 3

Input	Output
Vehicle speed	Image synthesis parameter group
Less than 10 km/h	Frame base
10 km/h or more	Field base

FIG. 4

Input	Output	
Vehicle speed	Image synthesis parameter group	Capture pattern
Less than 10 km/h	Frame base	Non-interlace, 1/30 sec.
10~30km/h	Field base	Interlace, 1/60 sec.
30 km/h or more	Field base	Interlace, 1/120 sec.

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FIG. 5

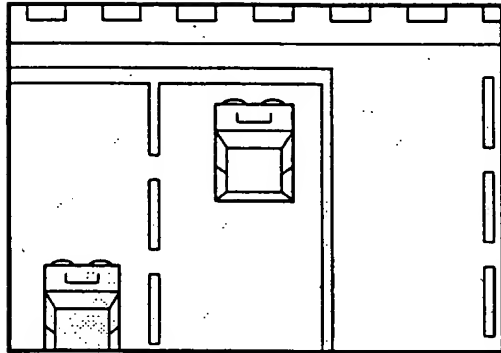
Input		Output	
Brightness	Vehicle speed	Image synthesis parameter group	Capture pattern
Bright	Less than 10 km/h	Frame base	Non-interlace, 1/30 sec.
	10~30km/h	Field base	Interlace, 1/60 sec.
	30 km/h or more	Field base	Interlace, 1/120 sec.
Dark	Less than 10 km/h	Frame base	Non-interlace, 1/30 sec.
	10~30km/h	Field base	Non-interlace, 1/30 sec.
	30 km/h or more	Field base	Interlace, 1/60 sec.

FIG. 6

Input			Output
Selection by driver	Distance from obstacle	Vehicle speed	Image synthesis parameter group
Composition A	—	Less than 10 km/h	Frame base for composition A
		10 km/h or more	Field base for composition A
Composition B	—	Less than 5 km/h	Frame base for composition B
		5 km/h or more	Field base for composition B
Automatic	Less than 1 m	Less than 5 km/h	Frame base for composition B
		5~10km/h	Field base for composition B
		10 km/h or more	Field base for composition A
	1 m or more	Less than 10 km/h	Frame base for composition A
		10 km/h or more	Field base for composition A

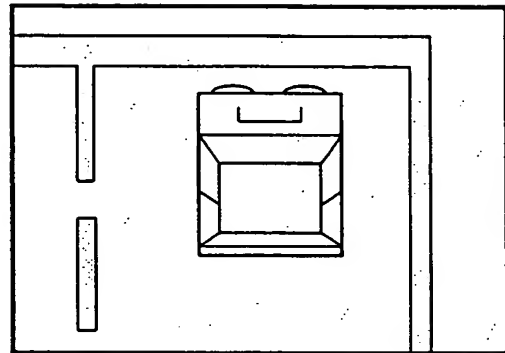
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FIG. 7A



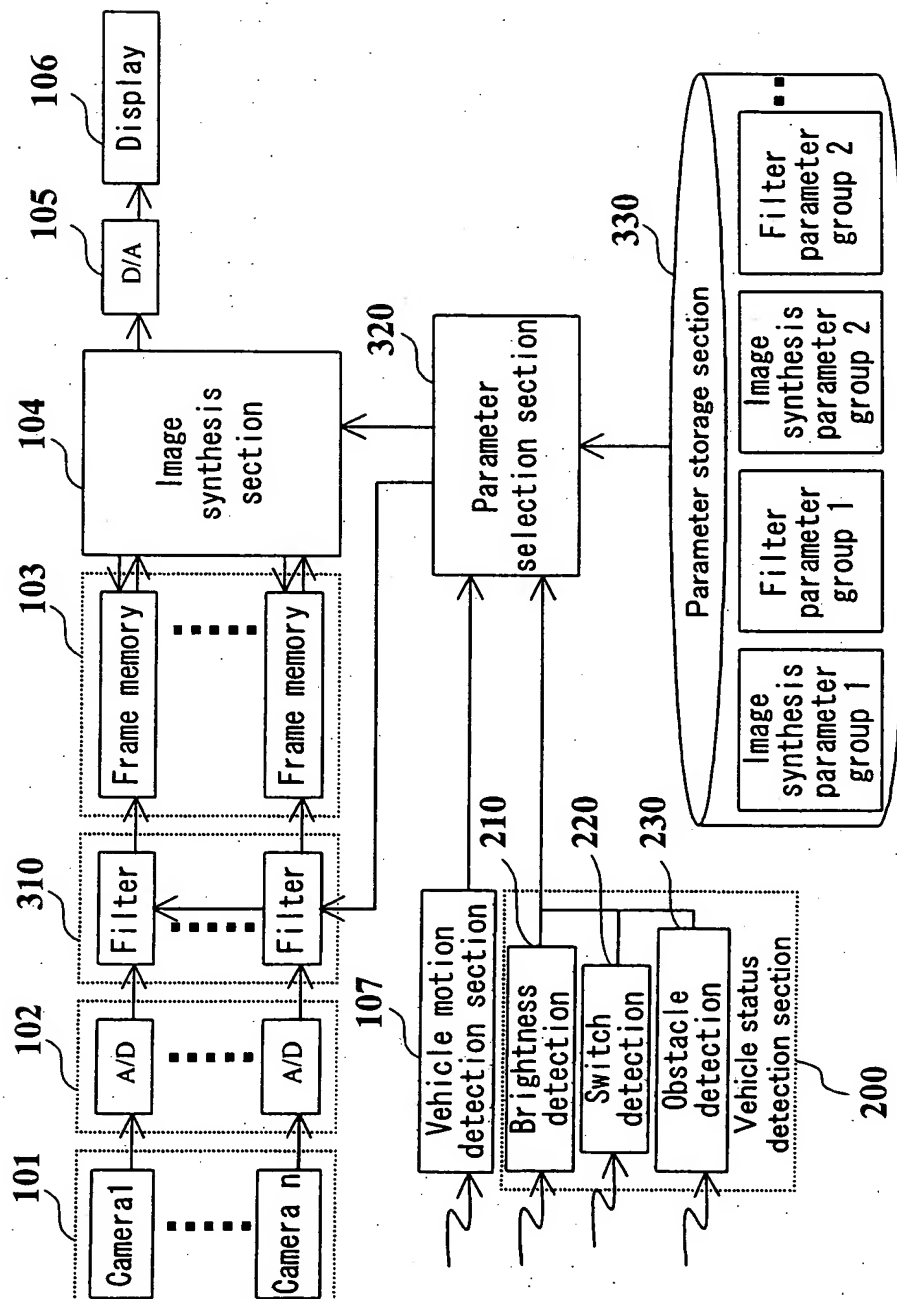
Composition A

FIG. 7B



Composition B

FIG. 8



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FIG. 9

Camera No.	Cut-off frequency
Camera 1	$1/4f_s$
Camera 2	$1/4f_s$
Camera 3	$1/2f_s$
Camera 4	$1/2f_s$

FIG. 10

Input		Output	
Selection by driver	Vehicle speed	Image synthesis parameter group	Filter parameter group
Composition A	—	1	1
Composition B	—	2	2
Automatic	Less than 10 km/h	1	1
	10 km/h or more	2	2

FIG. 11A

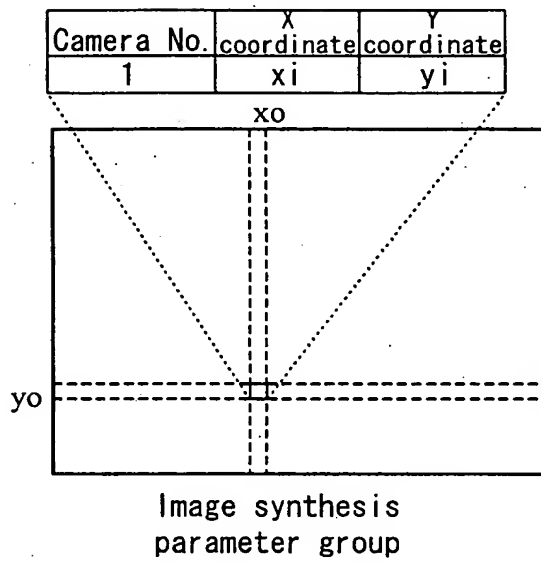
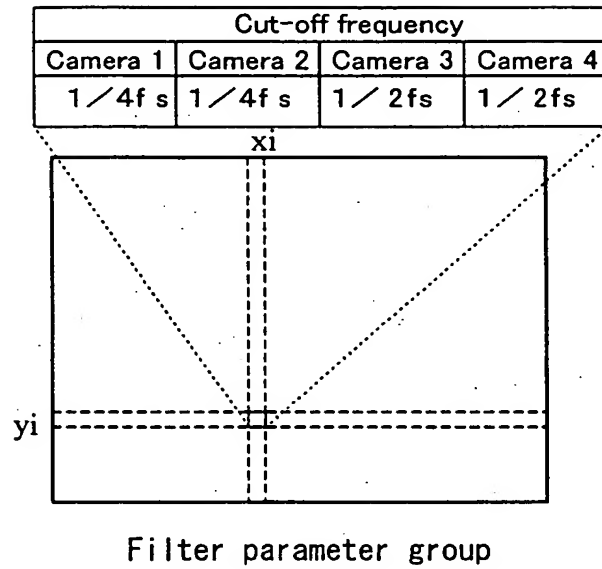
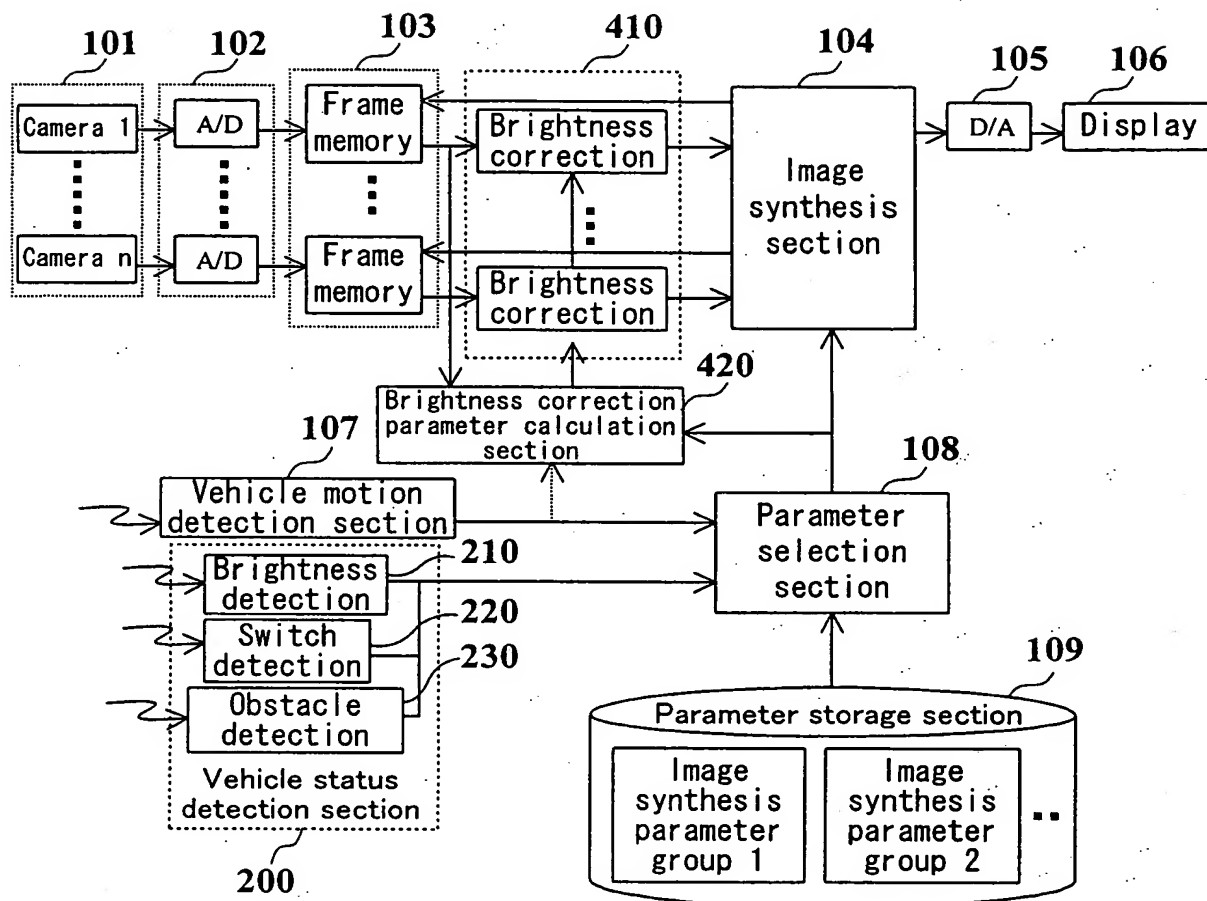


FIG. 11B



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FIG. 12



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FIG. 13A

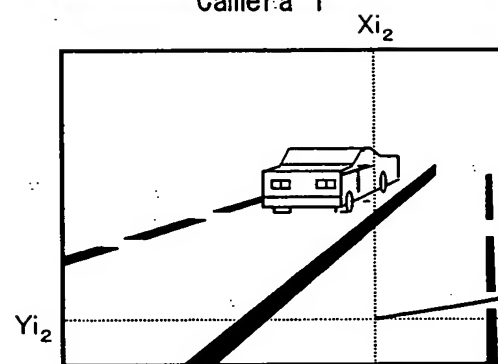
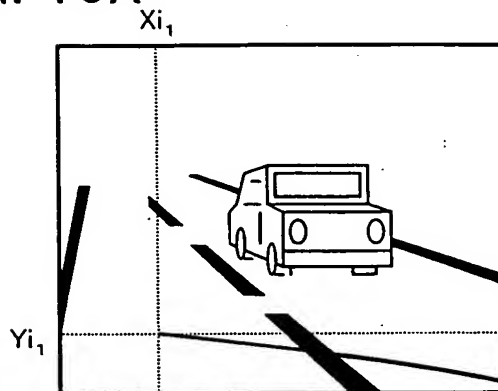
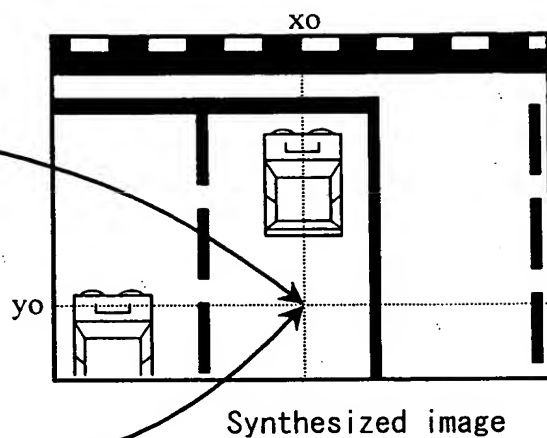


FIG. 13B

Camera 2

FIG. 13C



Synthesized image



FIG. 13D

Camera No.	X coordinate	Y coordinate	Weight
1	X_{i1}	Y_{i1}	0.7
2	X_{i2}	Y_{i2}	0.3

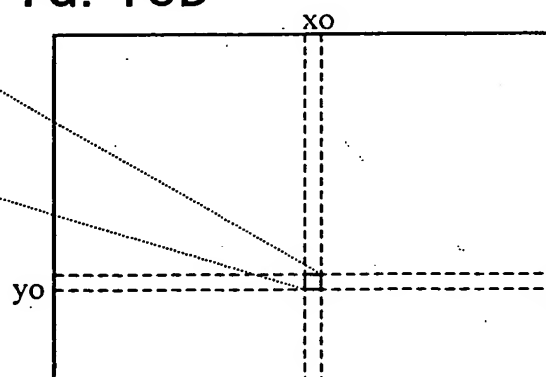


Image synthesis
parameter group

FIG. 14A

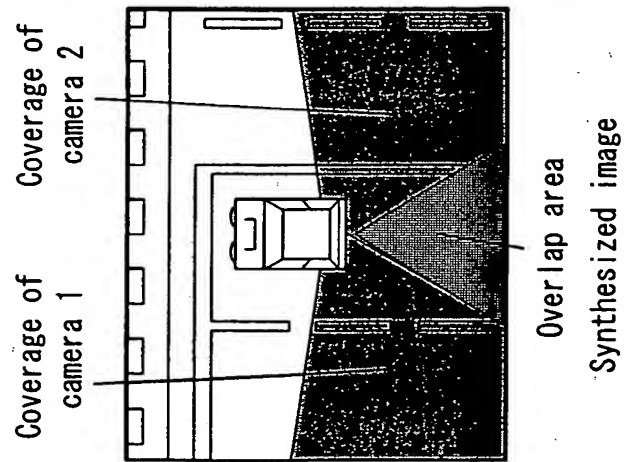
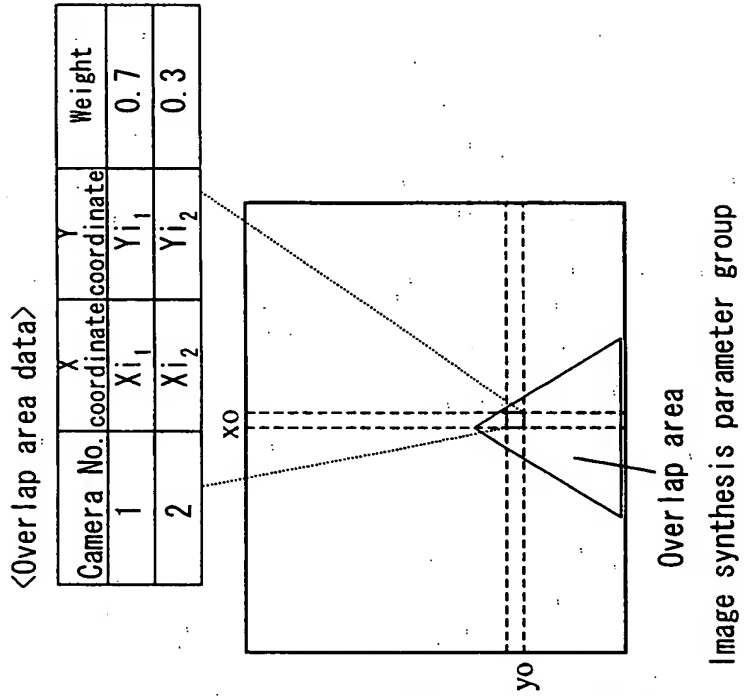
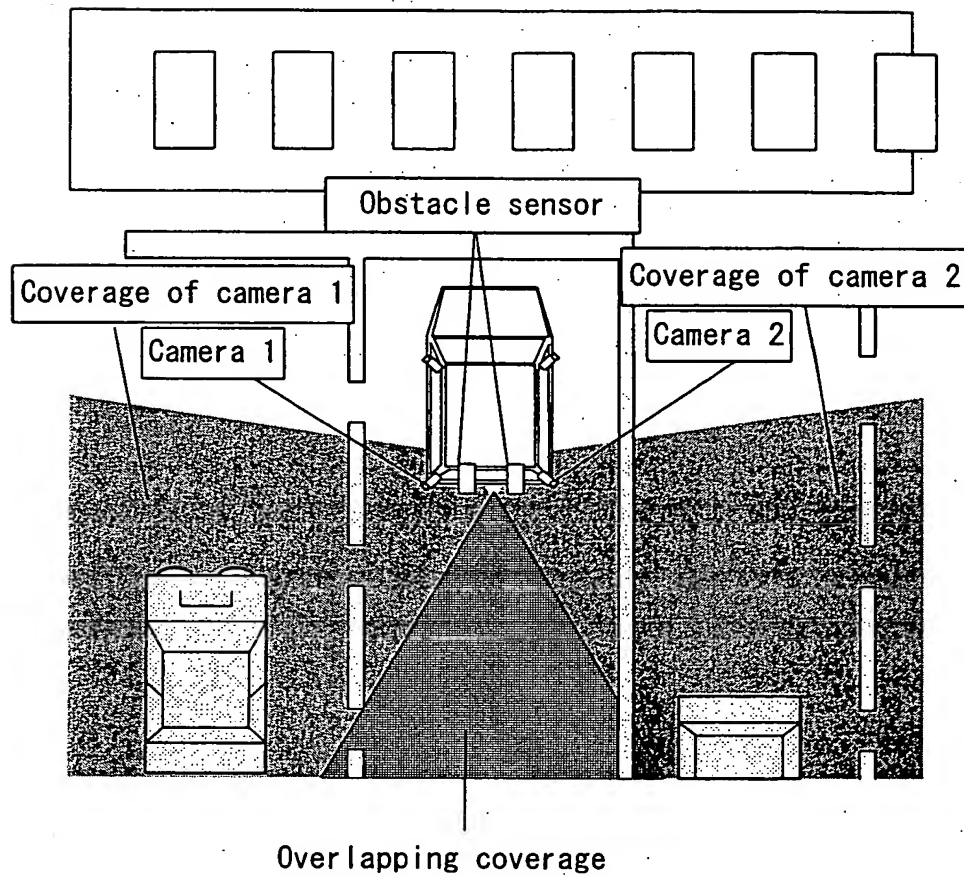


FIG. 14B



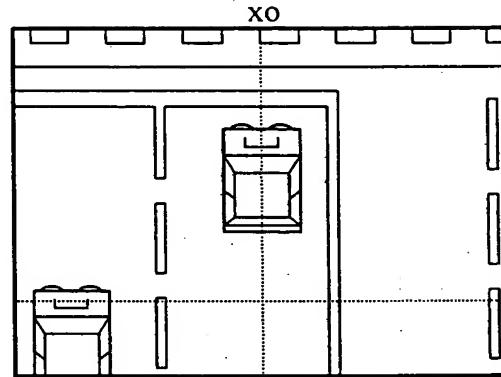
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FIG. 15



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FIG. 16A



Synthesized image

FIG. 16B

Camera No.	X coordinate	Y coordinate
1	x_1	y_1

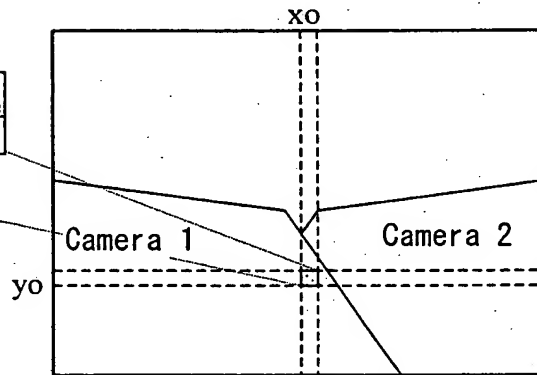


Image synthesis parameter group A

FIG. 16C

Camera No.	X coordinate	Y coordinate
2	x_{12}	y_{12}

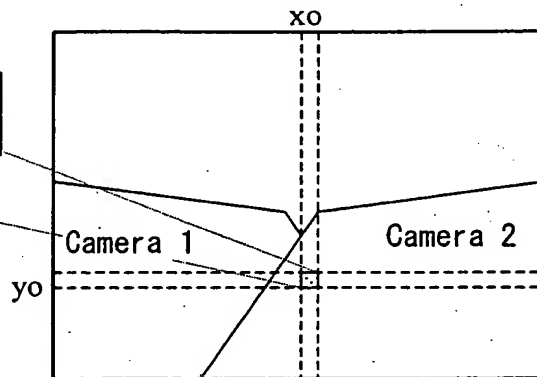


Image synthesis parameter group B

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FIG. 17A

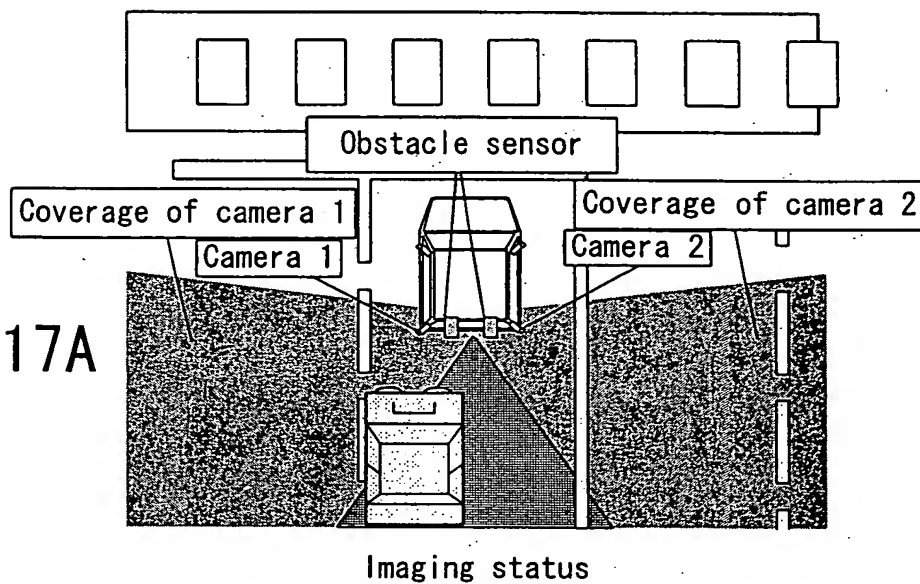


FIG. 17B

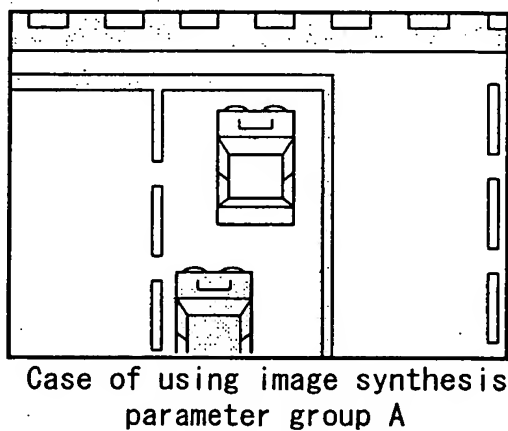
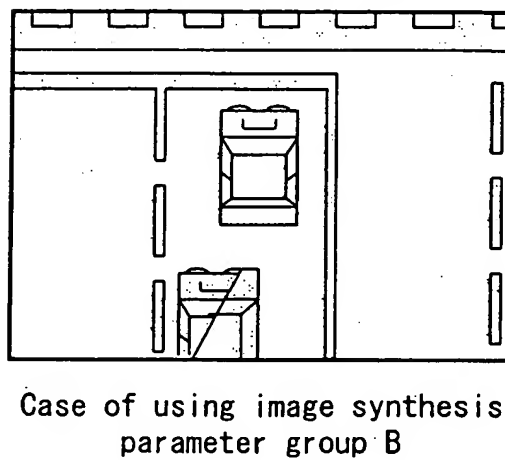


FIG. 17C



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FIG. 18

Camera No.	X coordinate	Y coordinate	Weight	
			A	B
1	X_{i_1}	Y_{i_1}	0.7	0.2
2	X_{i_2}	Y_{i_2}	0.3	0.8

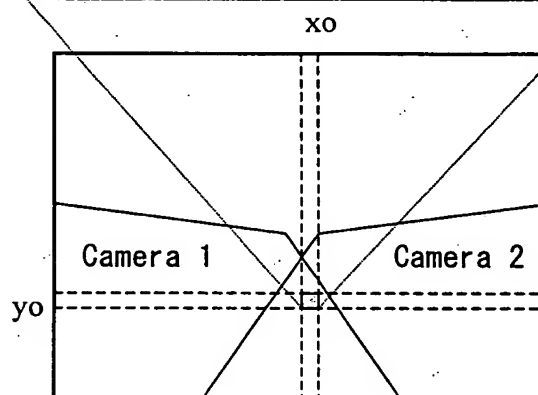
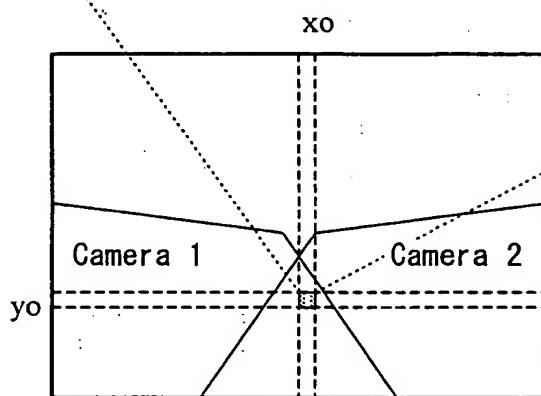


Image synthesis parameter group

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FIG. 19

Camera No. a	X coordinate a	Y coordinate a	Camera No. b	X coordinate b	Y coordinate b	Weight reference No.
1	X_{i_1}	Y_{i_1}	2	X_{i_2}	Y_{i_2}	3



Weight reference No.	Weight			
	A		B	
	Camera a	Camera b	Camera a	Camera b
1	1.0	0.0	0.0	1.0
2	0.8	0.2	0.1	0.9
3	0.7	0.3	0.2	0.8
⋮				

Image synthesis parameter group

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FIG. 20A

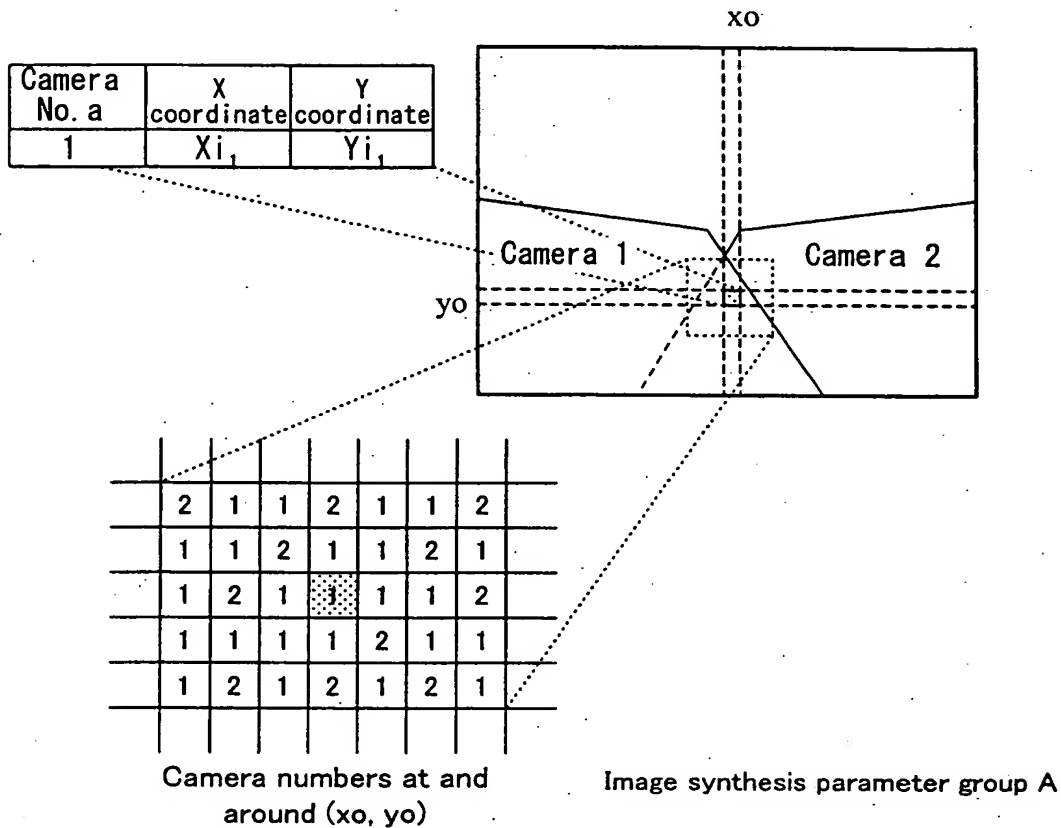
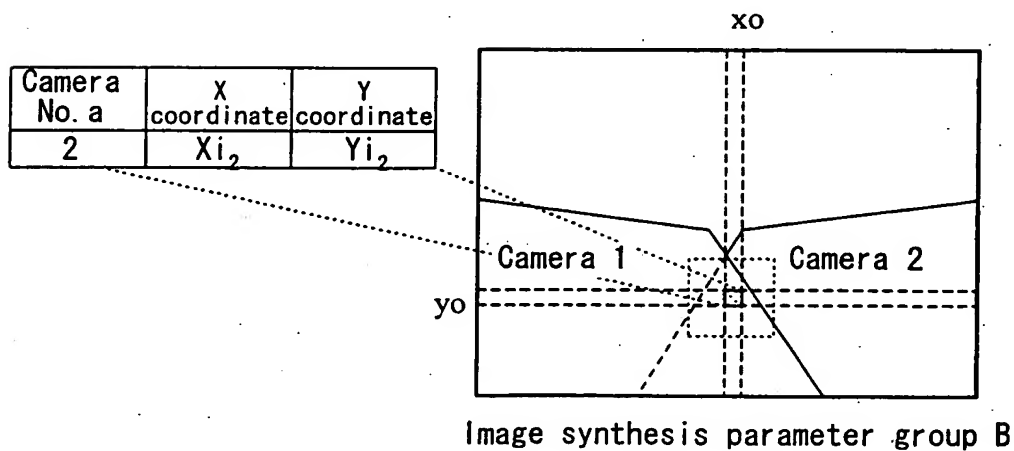
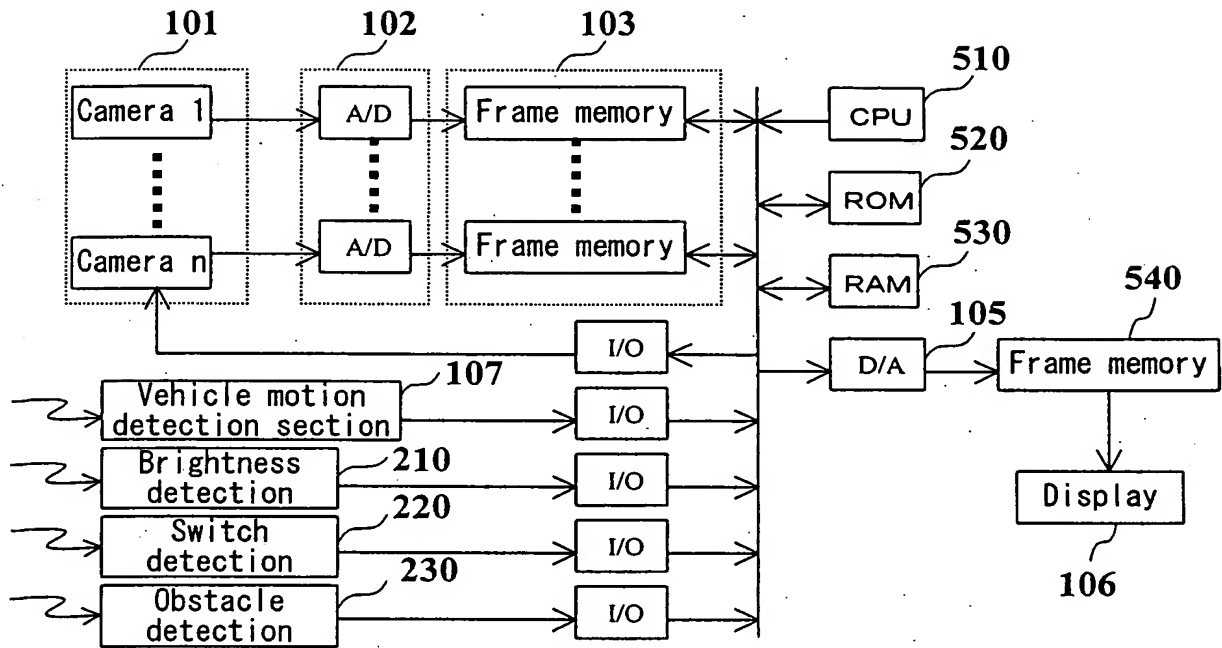


FIG. 20B



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FIG. 21



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FIG. 22A

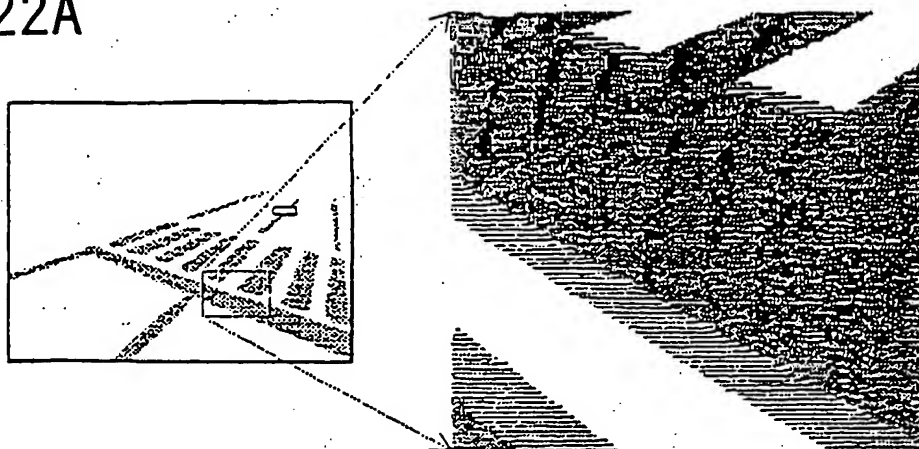
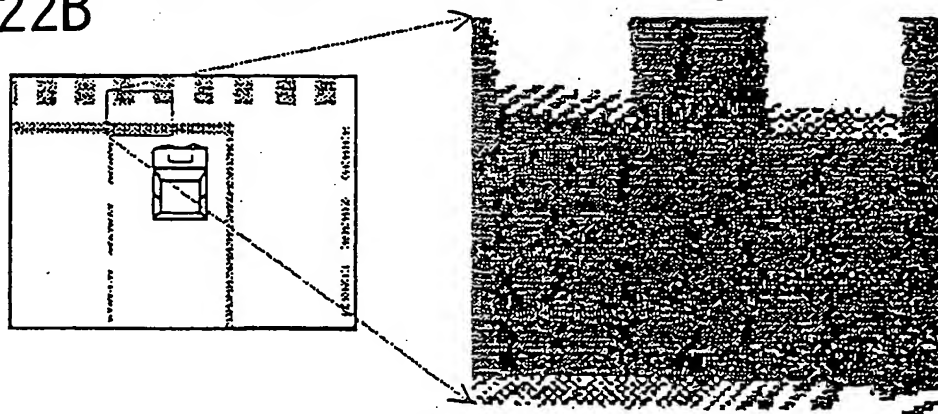
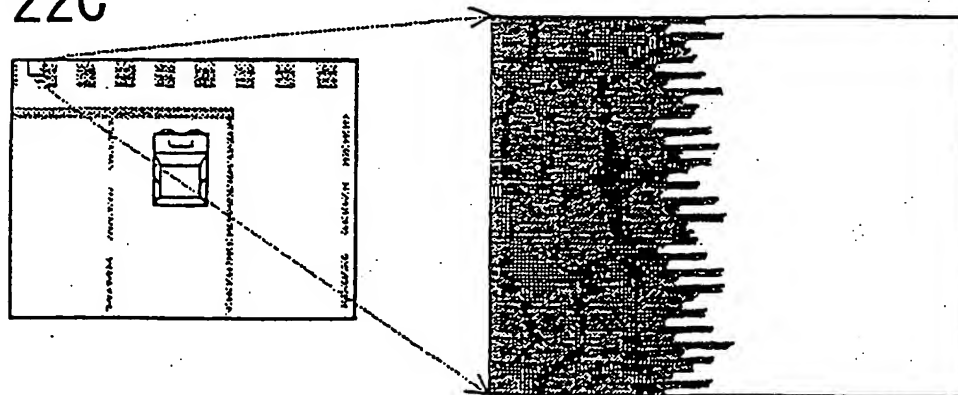


FIG. 22B Input image when a vehicle is moving (Camera 3)



Synthesized image per frame (the vehicle is moving)

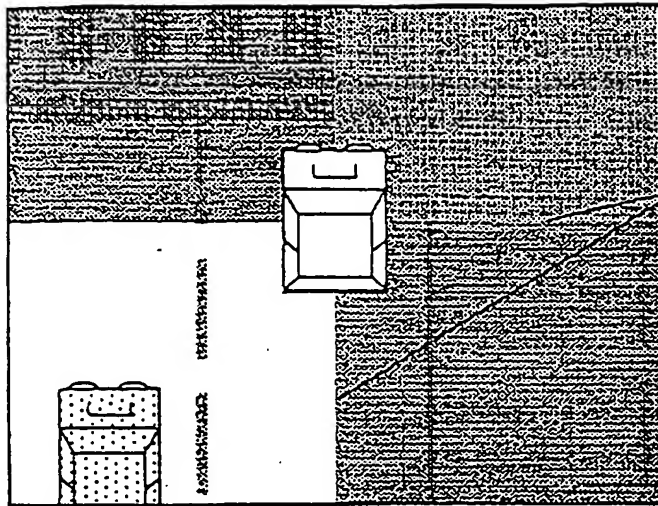
FIG. 22C



Synthesized image per field (the vehicle is standing still)
(Example 1 of prior art problems)

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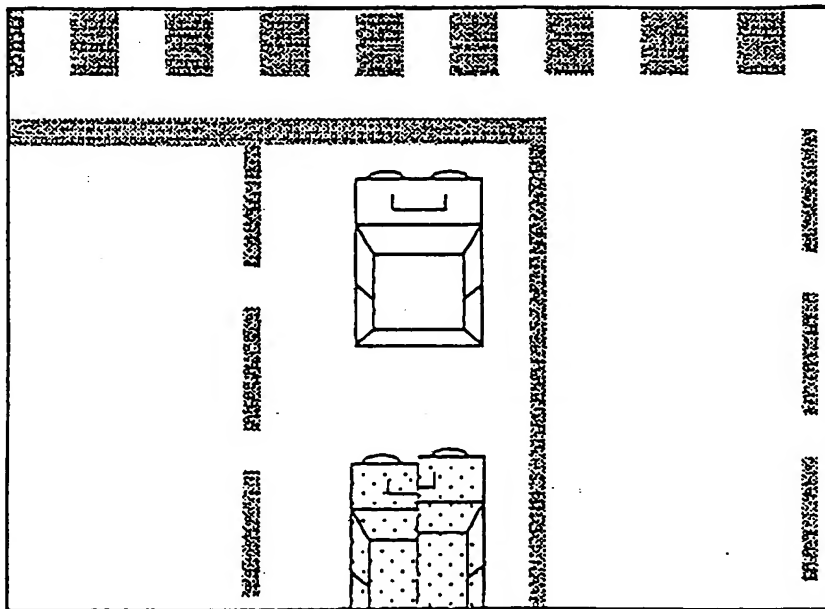
FIG. 23A



Junctures of images appear unnatural due to difference in brightness and tint with cameras

Nonmatching in brightness and tint

FIG. 23B



Displacement of images
(Example 2 of prior art problems)